

Valley, U. Chindwin R., U. Burma.) This type of "freak" tusk is apparently known to the Jungle Burman but as being very rare—they refer to it by a word meaning (sugar) "cane" which is corrugated in this fashion.

The corrugations are certainly not due to any rubbing on the part of the elephant, but are in the growth from the very root. I thought perhaps it was due to some disease when the elephant was young but the Burmans say no.

If you could account for it in any way I should very much like to know as may be you have seen similar tusks.

J. H. W,

RANGOON,  
7th July 1922.

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#### NO. VII.—EFFECT OF STORM ON ANIMALS.

During the writer's visit to Mysore on the Prince of Wales' tour, a shikari friend told me the following incident:—

In 1912 or 13 the Colonel who narrated the incident said that he happened to be motoring through the jungle in the South of India. They had to make a stop on account of a thunderstorm. During the violent outburst nothing was to be seen of any of the denizens of the jungle, who were probably covering away in the thickest depths, in great fear. Immediately after the storm had subsided, about 4 p.m. in the evening when the sun had broken through the clouds and its rays were making all the beautiful trees, rendered doubly green by the sudden outburst of the rain, scintillate and glitter in the way one often sees them do at home after a June thunderstorm, they proceeded on their way. The whole road became one mass of animals. The sides were thick with every imaginable kind of jungle animal ranging from a panther to numerous members of the *Cervidae* and smaller mammals, and numbers of peacock and jungle fowl. They were all sunning themselves in the space cleared in the jungle on either side of the road. The Colonel had often done this journey, but this was the only occasion on which he had seen the place 'swarming' with wild life. I wonder if other members have had similar experiences?

BERNARD C. ELLISON, C.M.Z.S.

BOMBAY NATURAL HISTORY SOCIETY,  
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#### NO. VIII.—NOTES ON OORIAL.

*Life history.*—Oorial are typical wild sheep, giving birth to one or, very occasionally, two lambs every year.

I take the period of gestation to be 5½ months, not six as is usually stated. I base this statement on the following observations. I have never seen any signs of the commencement of the rut in September. In the second half of September 1910 I was hunting oorial in the Shahpur district and right up to the end of the month the old rams were apart from the ewes. I then crossed the Indus and hunted markhor in the hills West of Kalabagh up to October 10th. There were oorial there also (I shot one ram) and no sign of the rut commencing. I returned to Massan and hunted oorial for a week in a jagir in the Talagang district and on October 17th I saw rams fighting and next day saw five rams chasing a ewe in season. In the third week of October 1920 I was in the Nili rukh (Jhelum district), and the rut was in full swing. In November 1919 I was in the Kala Chitta Range (Campbellpore district) and saw four rams chasing a ewe on November 19th. I have frequently been on oorial ground in early December, and the rut

has always been finished by then; the old rams having mostly separated into small parties unaccompanied by ewes. It seems certain therefore, that the rut falls normally between the first week of October and the last in November. The present close season is therefore based on, zoologically, incorrect data.

I have always seen the first lambs in the first week in April and some are born in the first half of May. The period of gestation therefore appears to be  $5\frac{1}{2}$  months.

Ewes are said to come into bearing in their fourth year, but it is possible that the third year is correct. Data on a point like this are very hard to obtain, and observations based on animals in captivity are not always applicable to wild animals.

It seems certain that a ram is not fully mature till his eighth year, at which age his horns should measure from 24 to 27 inches according to the conditions of grazing in his youth.

I would here emphasise the fact that oorial are grazing and not browsing animals, and that during the recent drought the want of grass was a strong factor in the reduction of their numbers.

*Preservation.*—It has always been found that on grounds where the old males have been shot off, that the heads never recover their strength, even with several years complete preservation. *e.g.* Red deer in Scotland and ibex in the Sind Valley in Kashmir. Once the immature rams have no difficulty in obtaining ewes, the stock weakens. There are at present a few old rams amongst the oorial, and a very promising stock of five to seven-year-olds. If these old rams are killed off now the stock born next year will be weak and a danger to the race. Then, if as they mature, the others are killed, the competition for ewes will cease and the race may even die out altogether.

A possible alternative to complete cessation of shooting for five years is closing for two or three years and then reopening to limited shooting with a higher size limit: I would recommend 26 inches. Nature has a way of compensating for the unusual, and it may be found that next spring the ewes will mostly have born twins instead of the usual single lamb.

As far as relative damage by sportsmen and villagers is concerned, it must be remembered that the modern young officer has still to be educated in the ethics of sport and the principles of preservation. There is a great deal of poaching carried out by Europeans in rukhs near the railway: notably Nili and Lehri Godari. I heard of three British officers basing their operations on Tarki railway station in the middle of last October, and killing 14 rams between them. I have personal knowledge of two other cases when officers from Rawalpindi motored to Sehawa and shot oorial under direction of a doctor (or veterinary officer) of a camel corps stationed there, he himself having no license. I found that much of this was due to ignorance of the shooting regulations, and after getting the Commandant of the Musketry School at Rawalpindi to post a notice on the subject, the practice ceased to a large extent. When I was in occupation of Nili rukh in the first half of December 1920, I twice saw Europeans shooting in my block, but was unable to come up with them on either occasion.

I would suggest that the regulations on the subject be posted in every club.

Villagers' dogs are a fruitful source of damage, as they chase ewes heavy with young, and frequently destroy the new-born lambs. I recommend their absolute exclusion from rukhs.

The occasional visit of a sportsman to a rukh is an excellent thing, as it often reveals an outbreak of poaching or of slackness of a watcher, and certainly acts as a deterrent. During the war the game in the remoter portions of Kashmir is reported to have decreased considerably owing to the want of any check on the Game Watchers and the consequent increase of poaching.

The proportion of rams to ewes should be about 50 per cent. of all ages: this gives about 10 ewes to every fully mature ram. Any increase of this

proportion should be dealt with by the shooting of a ewe before each ram is killed. Complaints as to destruction of crops would be met by such a regulation. There is no doubt that such complaints were justified in some few localities before this last disastrous season.

Since writing my first letter on the subject to you, I had a conversation with a big land-owner of Jalalpur, whose name I unfortunately cannot remember. He told me that the oorial in Jalalpur rukh had not suffered much from the drought, as they came down to the Jhelum to drink. This rukh is peculiarly situated, however, and I can think of no other with such advantages. The reports I have had from other rukhs are most depressing.

C. H. STOCKLEY, D.S.O.,

Major.

STANYON'S HOTEL, QUETTA,  
3rd October 1922.

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#### NO. IX.—THE BREEDING OF ELEPHANTS IN CAPTIVITY.

I have read with great interest Mr. Hundley's letter of 30th August 1921, given in the last issue of the journal received by me.

I have kept a record extending over a number of years and put the period of gestation at 22 months. An elephant may calve after 20 months, but if she does it is due to over work or over marching and the calf if born living will at first be weaker than a calf carried for the full period. More usually it is born dead.

My records comprise cases when I have seen the act myself and also cases when I know that a cow elephant has been covered by a bull within a period of a very few days.

It is not necessary for the bull elephant to be "musth" to reproduce his kind and in fact a calf can be got by an immature, still growing, bull, which has never been on "musth."

Among wild elephants a young bull would be driven away by the bigger tuskers and also in cases where a number of tame elephants are working and grazing together.

I differ from Mr. Hundley when he states that "musth" has little to do with the sexual instinct. Bull elephants on "musth" always become queer tempered at that time and many very dangerous both to men and to other elephants and have to be tied up and starved until "musth" abates.

If a cow in season can be provided for the bull it will tend to reduce his "musth," but he will drive away and even gore a cow which is not in season and will therefore not allow him to cover her.

We had a case only last April in our elephant rest camps, when a tusker—a dangerous man-killing beast even when sane—went musth and got loose without his hobbles. My two travelling elephants were fortunately close at hand and more fortunately still both in season. He covered them both repeatedly which so reduced his "musth" that our men were able to recapture him. He was then tied up and in spite of starvation his "musth" increased for some days and he would have nothing to do with another cow introduced to him.

A cow elephant in season will very often have a slight discharge from the glands between the eye and ear, similar to the discharge from a "musth" bull but of course to a very much less extent, in fact merely a slight dampness visible when the skin of the elephant is dry.

A bull going "musth" usually gives fair warning of his approaching condition by the glands of the temple swelling some days before the discharge commences